

REMARKS

Claims 1-20 are currently pending, of which claims 1-14 are under examination.

Claims 15-20 are withdrawn.

In the Office Action identified above,¹ the Examiner:

- a) rejected claims 1-4 and 10-12 under 35 U.S.C. § 103(a) as being unpatentable over Tanaka (U.S. Patent No. 6,906,374) in view of Matsuoka et al. (U.S. Patent No. 6,809,364, hereinafter "Matsuoka");
- b) rejected claims 6-9 under 35 U.S.C. § 103(a) as being unpatentable over Tanaka in view of Matsuoka and further in view of Nguyen et al. (U.S. Publication No. 2004/0092095, hereinafter "Nguyen"); and
- c) objected to claims 5, 13, and 14 as being dependent upon a rejected base claim, but stated that these claims would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims.

By the present Amendment, Applicant has amended claim 1 to more appropriately define the invention. Applicant has also amended claim 11 to correct a typographical error inadvertently introduced in the Amendment After Final filed November 13, 2006.

Applicant has amended claim 1 to recite, in part, "a guard ring buried in said second insulating film surrounding a single said MIM capacitor." (emphasis added) Support for this feature may be found in the specification at, for example, page 5, lines

¹ The Office Action may contain statements characterizing the related art, case law, and claims. Regardless of whether any such statements are specifically identified herein, Applicant declines to automatically subscribe to any statements in the Office Action.

8 - 21, and in Figs. 1 and 2, illustrating that a guard ring 9 is formed to surround an MIM capacitor 5 which includes a bottom electrode 5a, a dielectric film 5b, and a top electrode 5c.

Applicant respectfully traverses the rejection of claims 1-4 and 10-12 under 35 U.S.C. § 103(a) as being unpatentable over Tanaka in view of Matsuoka. A *prima facie* case of obviousness has not been established.

To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See M.P.E.P. § 2142, 8th Ed., Rev. 5 (August 2006). Moreover, "in formulating a rejection under 35 U.S.C. § 103(a) based upon a combination of prior art elements, it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed." USPTO Memorandum from Margaret A. Focarino, Deputy Commissioner for Patent Operations, May 3, 2007, page 2.

A *prima facie* case of obviousness has not been established because, among other things, Tanaka and Matsuoka, taken alone or in combination, fail to teach or suggest each and every element recited in independent claim 1. In particular, the cited references fail to teach or suggest at least the claimed semiconductor device including "a guard ring buried in said second insulating film surrounding a single said MIM capacitor," as recited in claim 1.

The Examiner contends that Takana discloses, among other things, "an MIM capacitor having a lower metal electrode 54 or 11 ... and a guard ring 54 (see the rightmost 54 and column 11, lines 35-38) buried in the second insulating film 48 surrounding the MIM capacitor." Office Action at page 2. Tanaka shows, in Fig. 5, a

guard ring 15 piercing through the interlayer insulation film and extending along the boundary between the capacitor region (including capacitor lower electrodes 11) and the peripheral region, "to cut across the regions." See Tanaka, col. 8, lines 19-22. However, as shown in Fig. 5, Tanaka's guard ring 15 does **not** surround a **single capacitor**, but rather surrounds the **entire capacitor region** consisting of a plurality of capacitor lower electrodes 11. Therefore, Tanaka fails to teach the "guard ring buried in said second insulating film surrounding a single said MIM capacitor," as recited in amended claim 1.

Matsuoka fails to overcome the shortcomings of Tanaka, because Matsuoka also does not teach the claimed "guard ring buried in said second insulating film surrounding a single said MIM capacitor" of claim 1. The Examiner contends that Matsuoka teaches a second insulating film "covering above top surface of the MIM capacitor." See Office Action at page 3. However, even assuming that the Examiner's contentions are true, Matsuoka is silent regarding a guard ring, and thus fails to teach or suggest the claimed "guard ring buried in said second insulating film surrounding a single said MIM capacitor," as recited in claim 1.

Accordingly, the Examiner's proposed combination of Tanaka and Matsuoka fails to teach or suggest each and every element recited in independent claim 1. For at least this reason, no *prima facie* case of obviousness has been established regarding claim 1. Accordingly, claim 1 is allowable over Tanaka and Matsuoka, and claims 2-4 and 10-12 are also allowable over these references at least due to their dependence from claim 1. The rejection of claims 1-4 and 10-12 under 35 U.S.C. § 103(a) should be withdrawn.

Applicant respectfully traverses the rejection of claims 6-9 under 35 U.S.C. § 103(a) as being unpatentable over Tanaka in view of Matsuoka and further in view of Nguyen. A *prima facie* case of obviousness has not been established because, among other things, the Examiner's proposed combination of the cited references fails to teach or suggest each and every element recited in claim 1 and required by dependent claims 6-9.

Applicant has already established above regarding claim 1 that Tanaka and Matsuoka fail to teach at least the claimed "guard ring buried in said second insulating film surrounding a single said MIM capacitor," as recited in claim 1. The Examiner relies on Nguyen for teaching "forming of an insulating film 104 surrounding an interconnect and made of materials including fluorine containing silicon oxide (FSG), carbon containing silicon oxide (SiOC), or porous silicon oxide (par. [0023])." See Office Action at page 4. However, even if these teachings are present in Nguyen, Nguyen fails to teach or suggest the claimed "guard ring buried in said second insulating film surrounding a single said MIM capacitor," as recited in claim 1 and required by dependent claims 6-9, and thus fails to overcome the shortcomings of Tanaka and Matsuoka. Therefore, claims 6-9 are allowable over the Examiner's proposed combination of Tanaka, Matsuoka, and Nguyen. The rejection of claims 6-9 under 35 U.S.C. § 103(a) should be withdrawn.

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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